

The background of the slide features a dark blue, blurred financial chart. It includes a line graph with white circular markers and a bar chart with blue bars. A white 'L' shaped graphic element is positioned to the left of the title. The overall aesthetic is professional and data-oriented.

# BANK LOAN CASE STUDY

# Project Description:

- This case study helps us to apply EDA in a real business scenario.
- It gives us a general understanding of risk analysis in banking sector.
- It also helps in minimizing the risks involved in a banking sector.
- This study helps us to identify the factors influencing the status of loan (approve or reject).

# Approach:

- ❖ Download and open the dataset in Excel.
- ❖ Study the data & identify the factors influencing a loan.
- ❖ Analyze the factors.
- ❖ Plot graphs & charts based on the analysis.

# Tech-Stack Used:

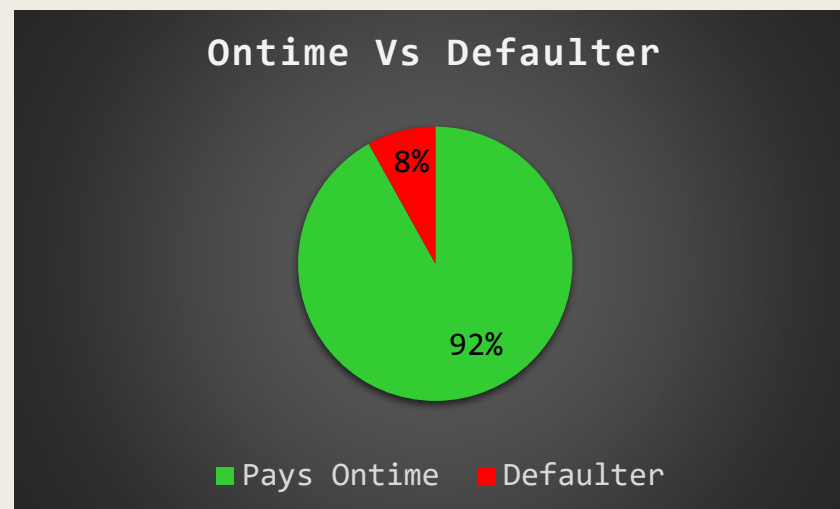
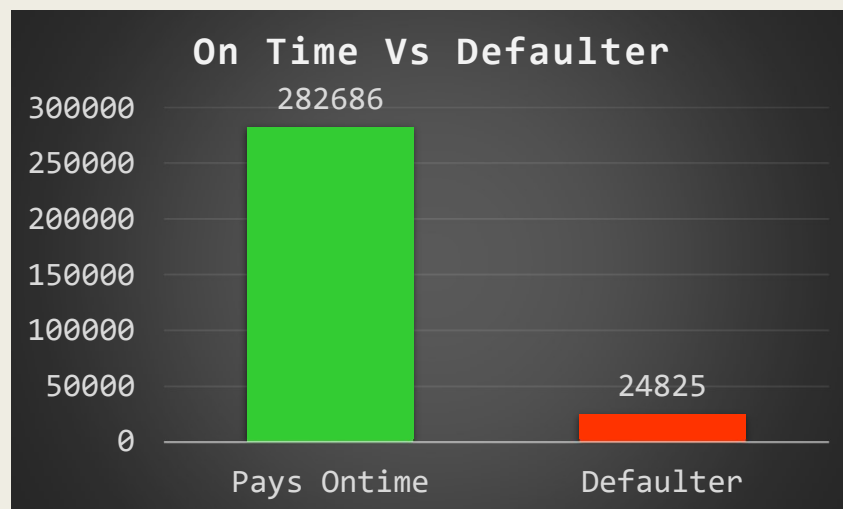
- ❖ Microsoft Office:
  - MS Excel: To analyze the dataset & create charts.
  - MS PowerPoint: To Prepare the presentation.
- ❖ Google Drive: To upload the Presentation



Insights & Results:

# Proportion of Defaulters in Data set:

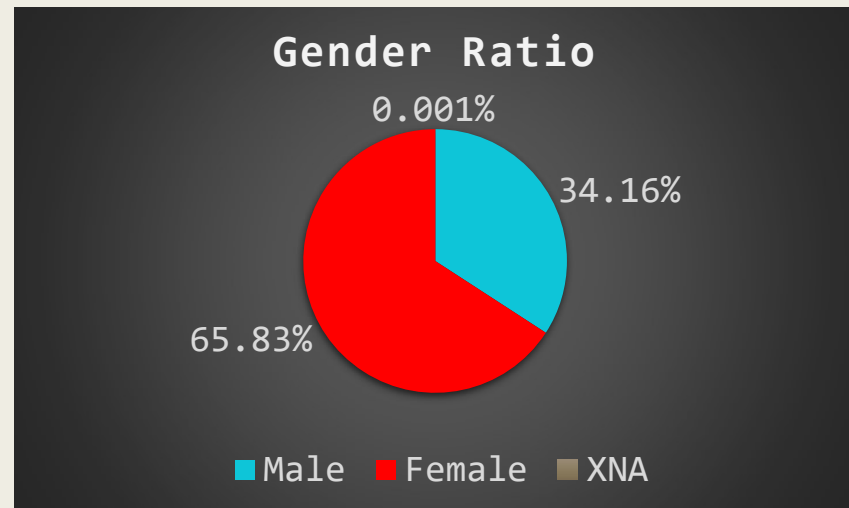
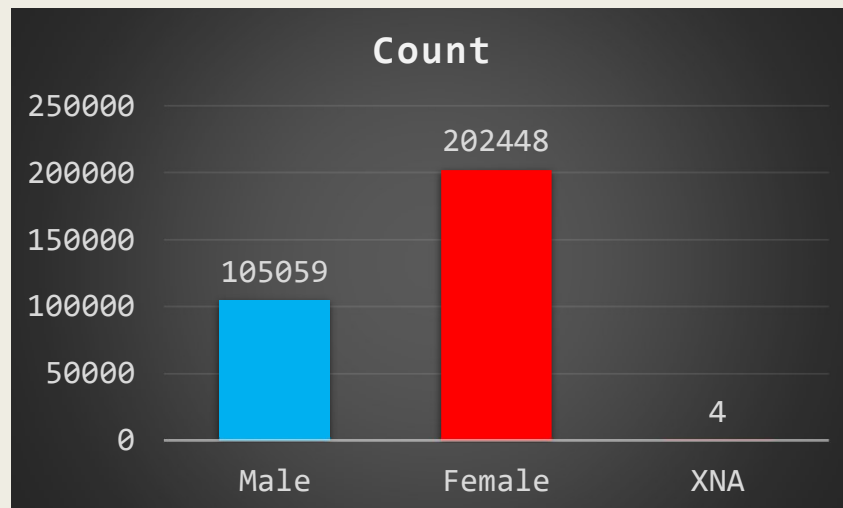
Target	Count	%
Pays Ontime	282686	92%
Defaulter	24825	8%



- ❖ A total of 307511 clients were considered & 8% of the clients are defaulters while the remaining 92% of the clients pays on time.

# Gender Ratio:

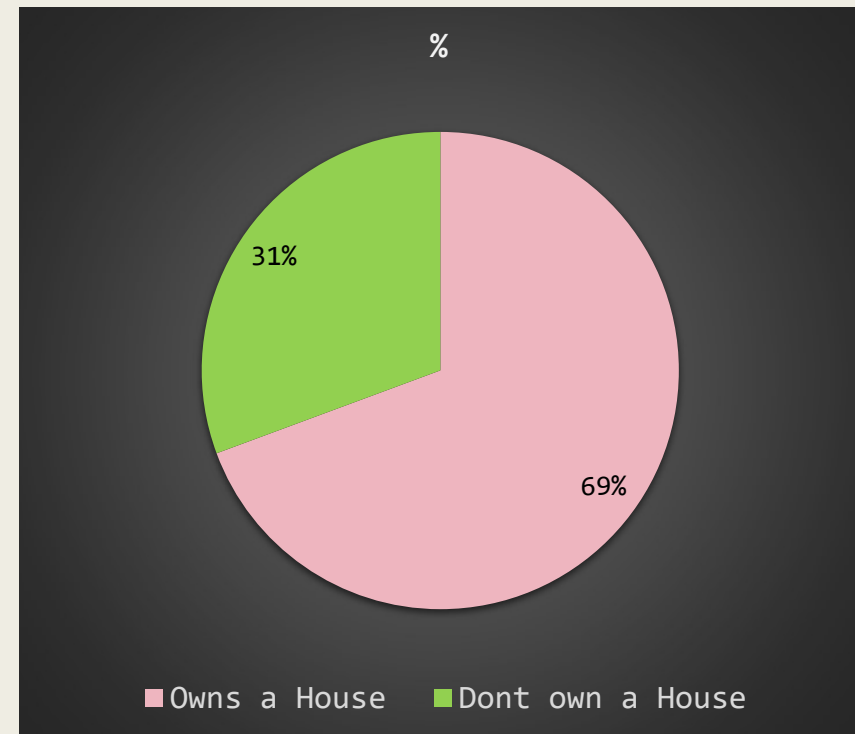
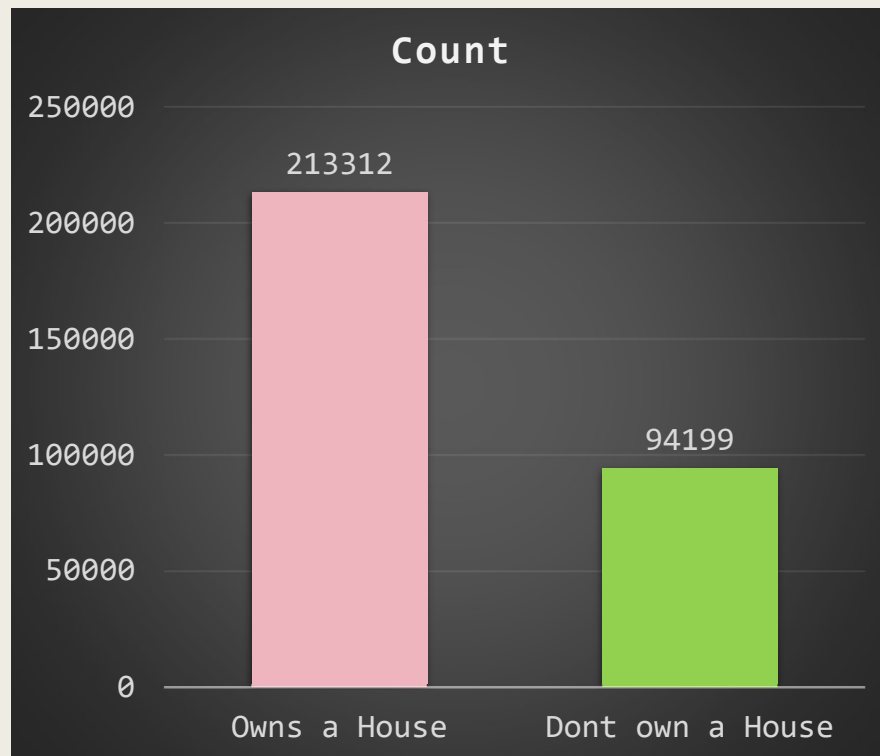
Gender	Count	%
Male	105059	34.16%
Female	202448	65.83%
XNA	4	0.001%



❖ 66% of the clients are female & 34% of the clients are male.

# House Ownership:

Housing Type	Count	%
Owens a House	213312	69%
Don't own a House	94199	31%

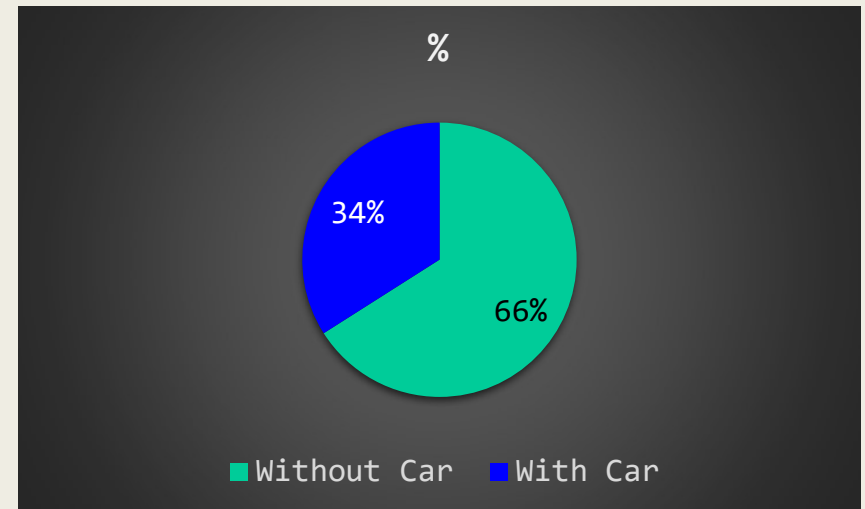
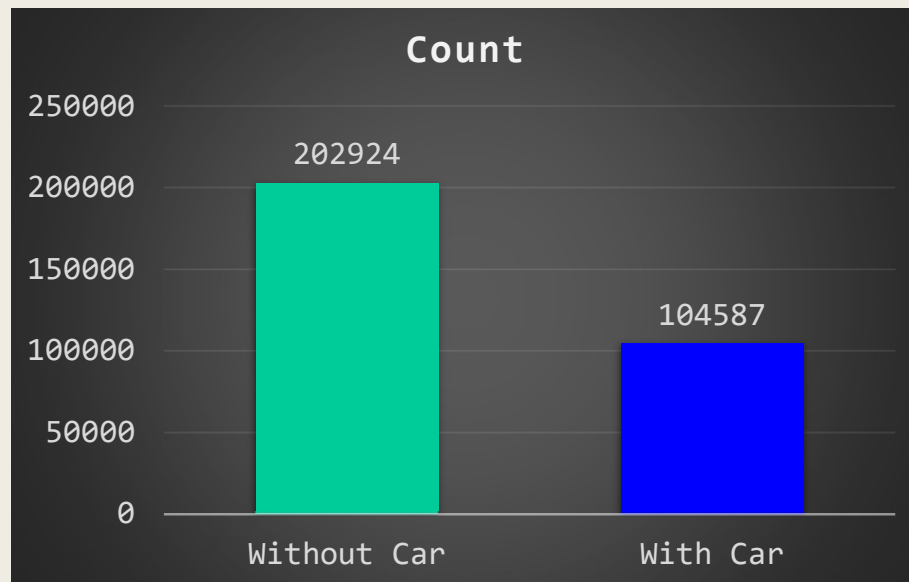


- ❖ 69% of the clients owns a house/property while the remaining 31% clients do not own a house/property.



# Car Ownership:

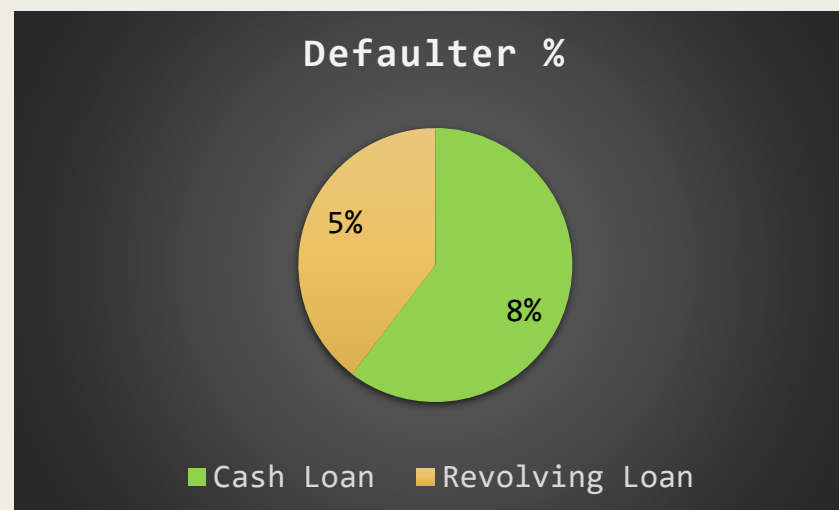
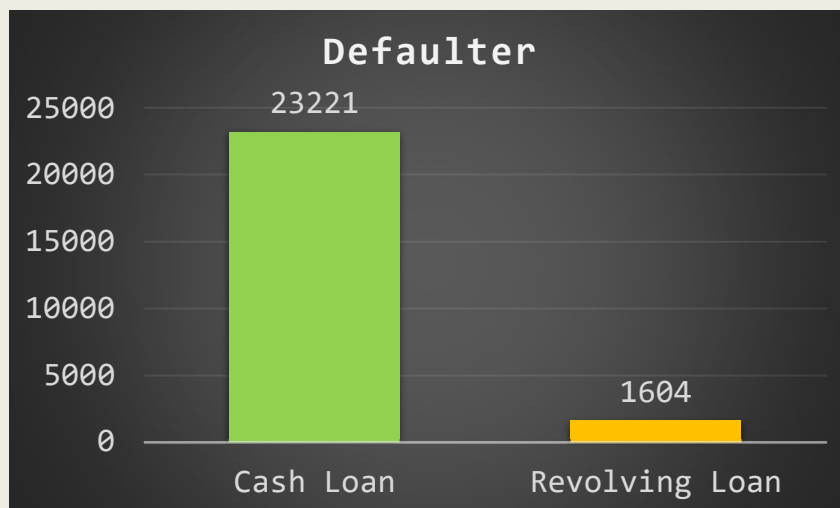
Car Ownership	Count	%
Without Car	202924	66%
With Car	104587	34%



❖ 34% of the clients owns a car while the remaining 66% of the clients do not own a car.

# Defaulters based on contract type:

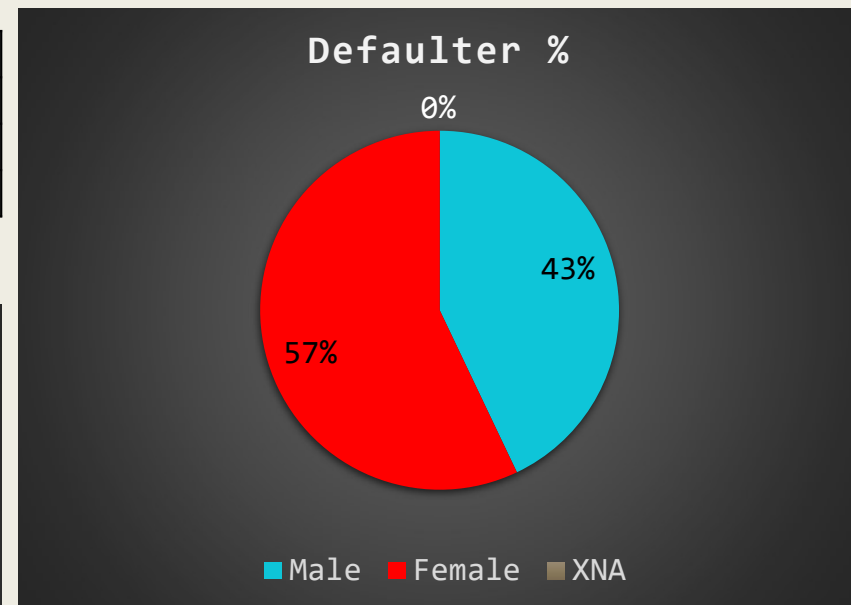
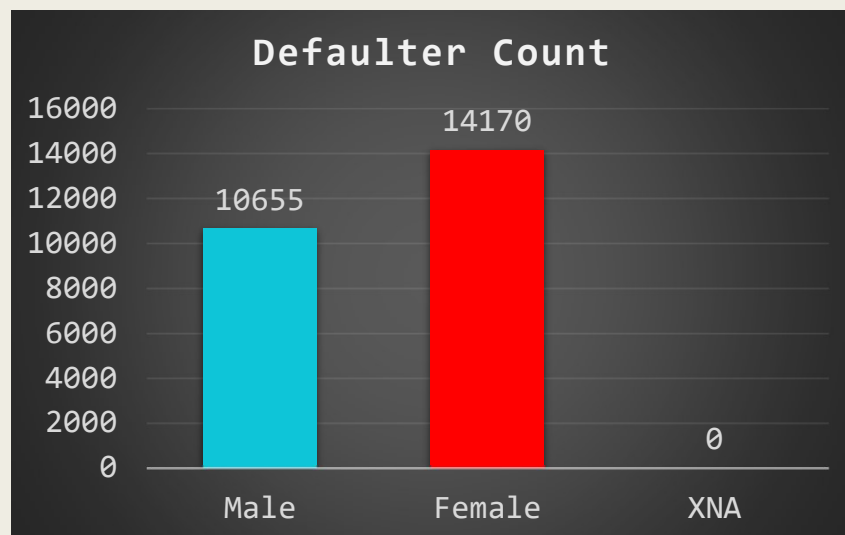
Name_Contract_Type	Defaulter Count	Defaulter %
Cash Loan	23221	8%
Revolving Loan	1604	5%



❖ Less defaulters for Revolving loan as compared to Cash loan.

# Defaulters based on Gender:

Gender	Defaulter Count	Defaulter %
Male	10655	43%
Female	14170	57%
XNA	0	0%

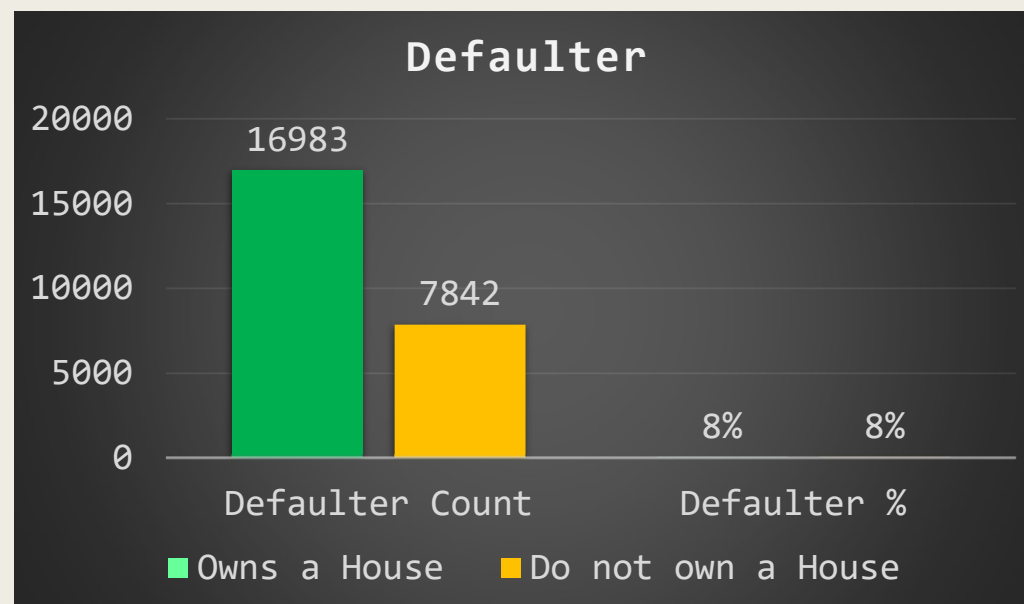


❖ Count of females in defaulters is higher as compared to males.

# Defaulters based on House Ownership:

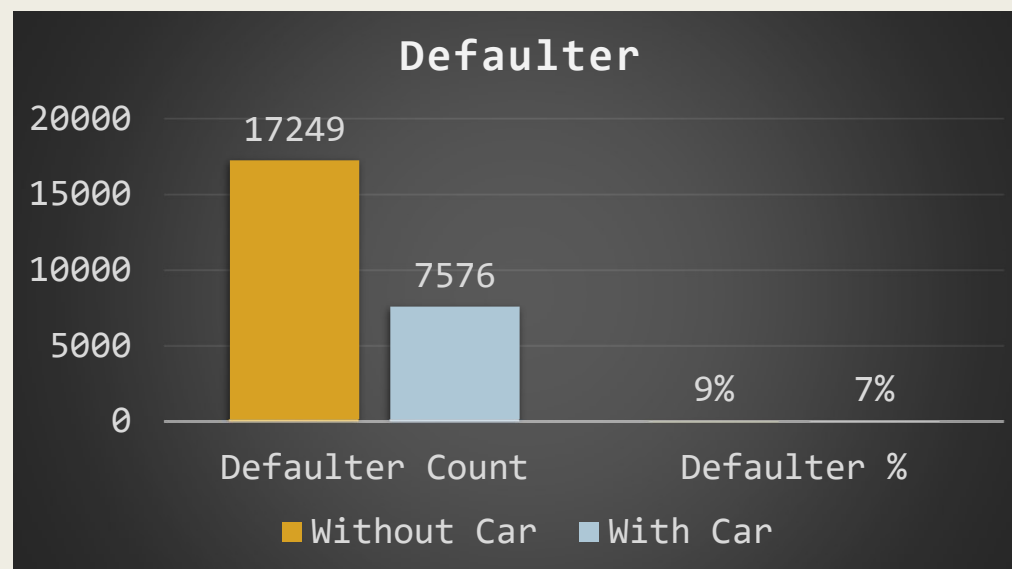
Housing Type	Defaulter Count	Defaulter %
Owens a House	16983	8%
Do not own a House	7842	8%

- ❖ Clients who owns a House/Property defaults similar to clients without ownership of House/Property.



# Defaulters based on Car Ownership:

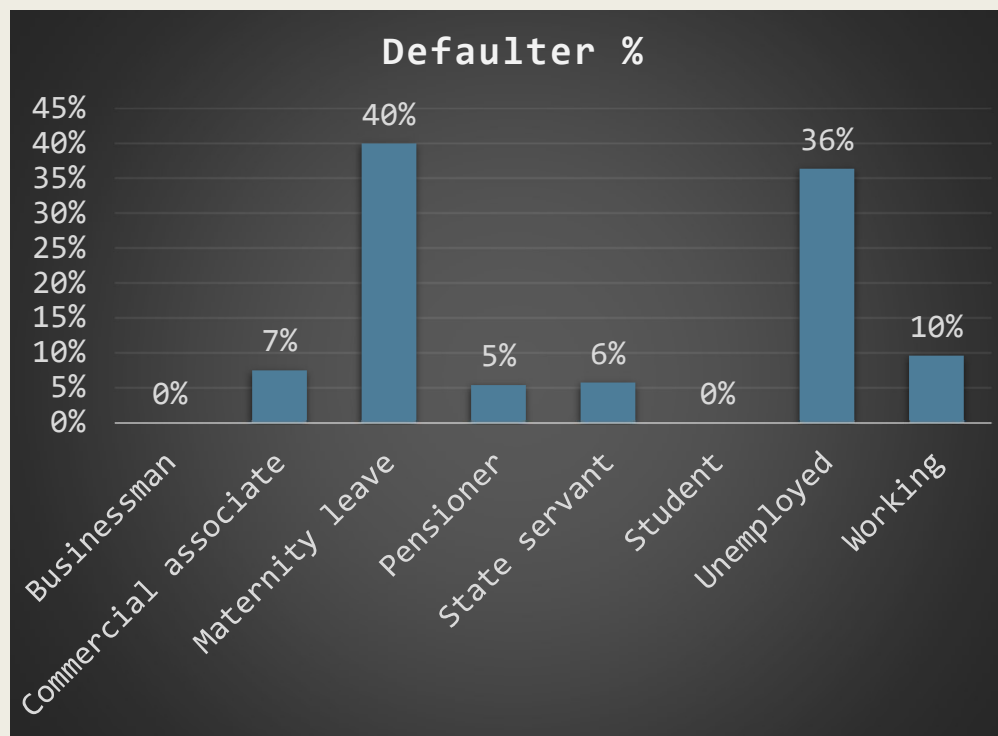
Car Ownership	Defaulter Count	Defaulter %
Without Car	17249	9%
With Car	7576	7%



❖ Clients who owns a car defaults less as compared to clients who do not own cars.

# Defaulters based on Profession:

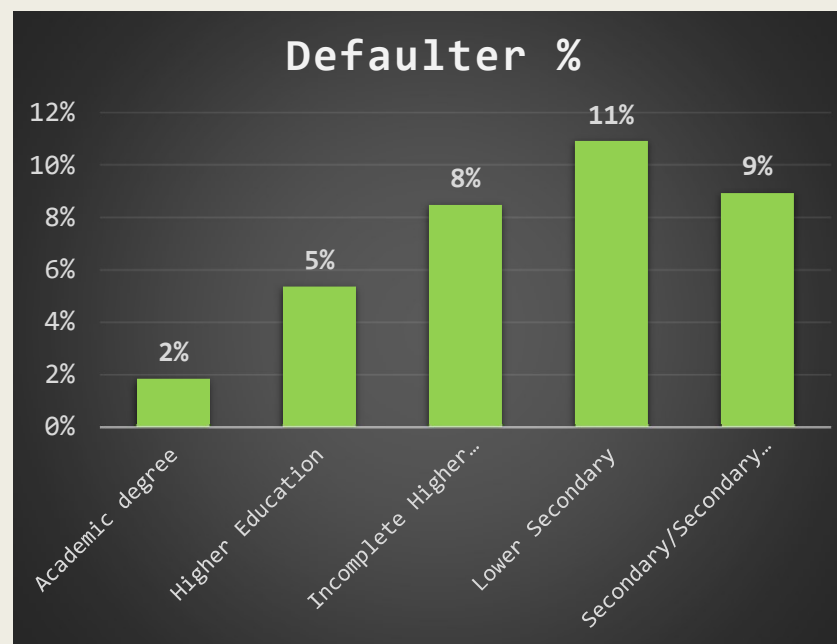
NAME_INCOME_ TYPE	Defaulter _Count	Defaulter %
Businessman	0	0%
Commercial associate	5360	7%
Maternity leave	2	40%
Pensioner	2982	5%
State servant	1249	6%
Student	0	0%
Unemployed	8	36%
Working	15224	10%



❖ Maternity leave & Unemployed clients defaults more compared to other professions.

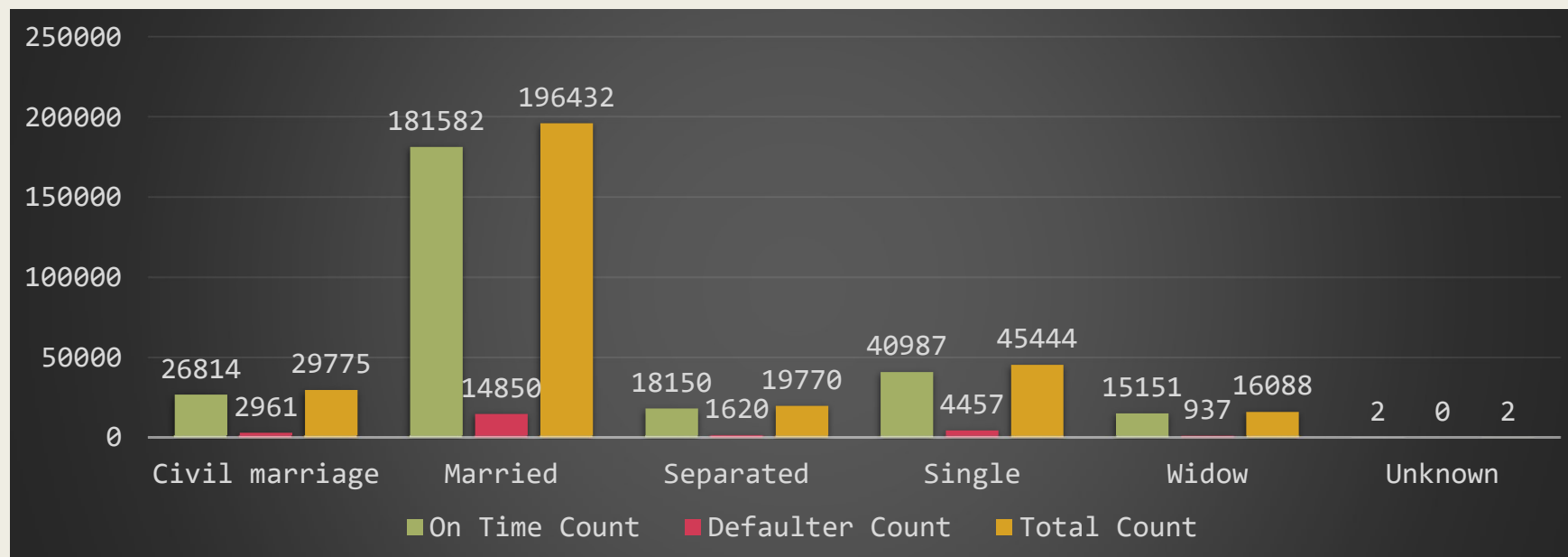
# Defaulters based on Education:

NAME_EDUCATION _TYPE	Defaulter Count	Defaulte r %
Academic degree	3	2%
Higher Education	4009	5%
Incomplete Higher Education	872	8%
Lower Secondary	417	11%
Secondary/ Secondary Special	19524	9%



❖ Higher the client education lower is the default rate.

# Defaulters Based on Family Status:



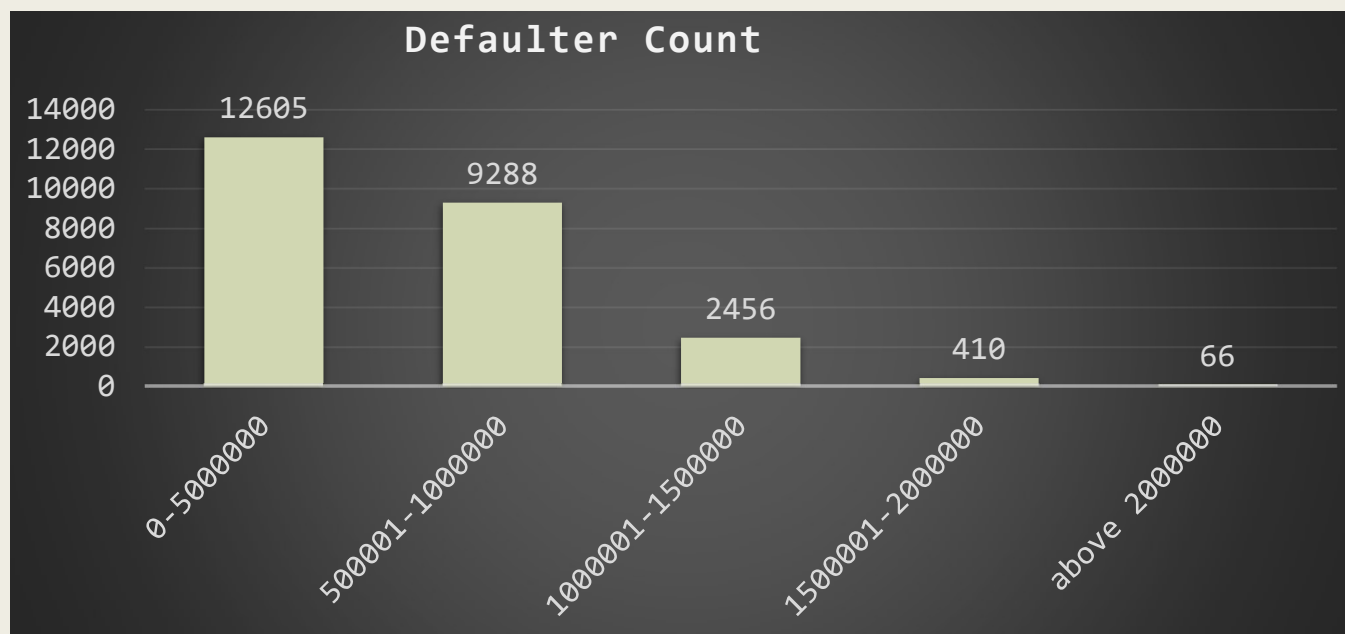
NAME_FAMILY_ST ATUS	On Time Count	Defaulter Count	Total Count
Civil marriage	26814	2961	29775
Married	181582	14850	196432
Separated	18150	1620	19770
Single	40987	4457	45444
Widow	15151	937	16088
Unknown	2	0	2

❖ Married Clients defaults less.



# Defaulters based on Credit Amount:

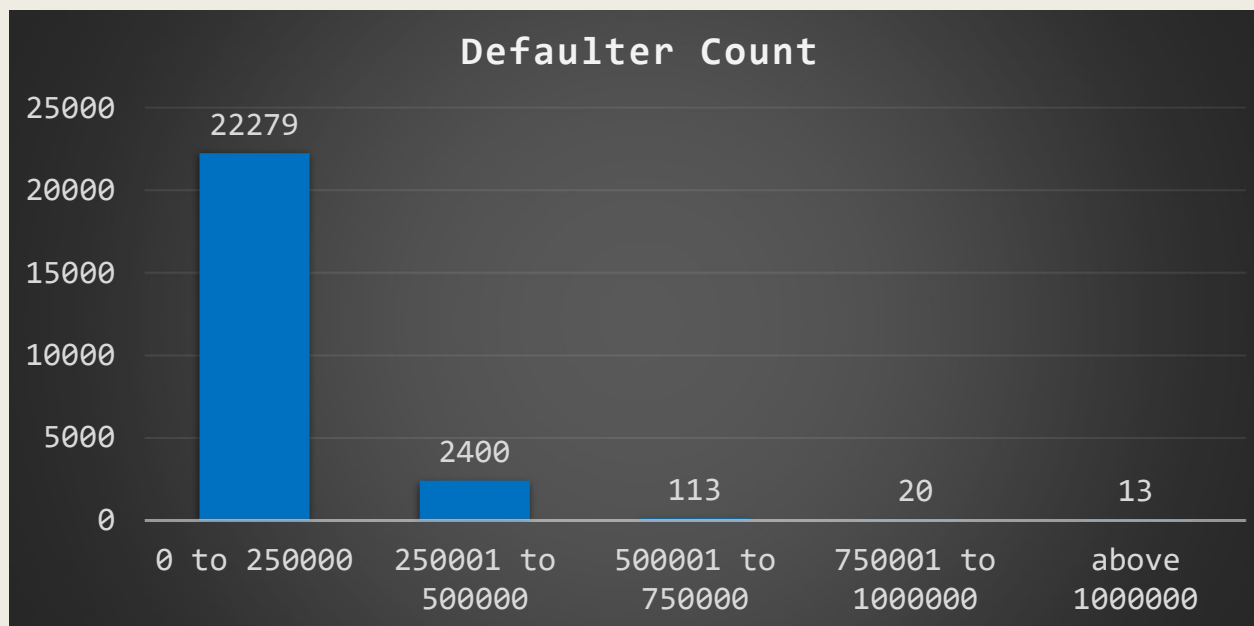
Credit Amount	Defaulter Count
0 to 5000000	12605
500001 to 1000000	9288
1000001 to 1500000	2456
1500001 to 2000000	410
above 2000000	66



❖ Better return of loans as loan size increases.

# Defaulters based on Income Level:

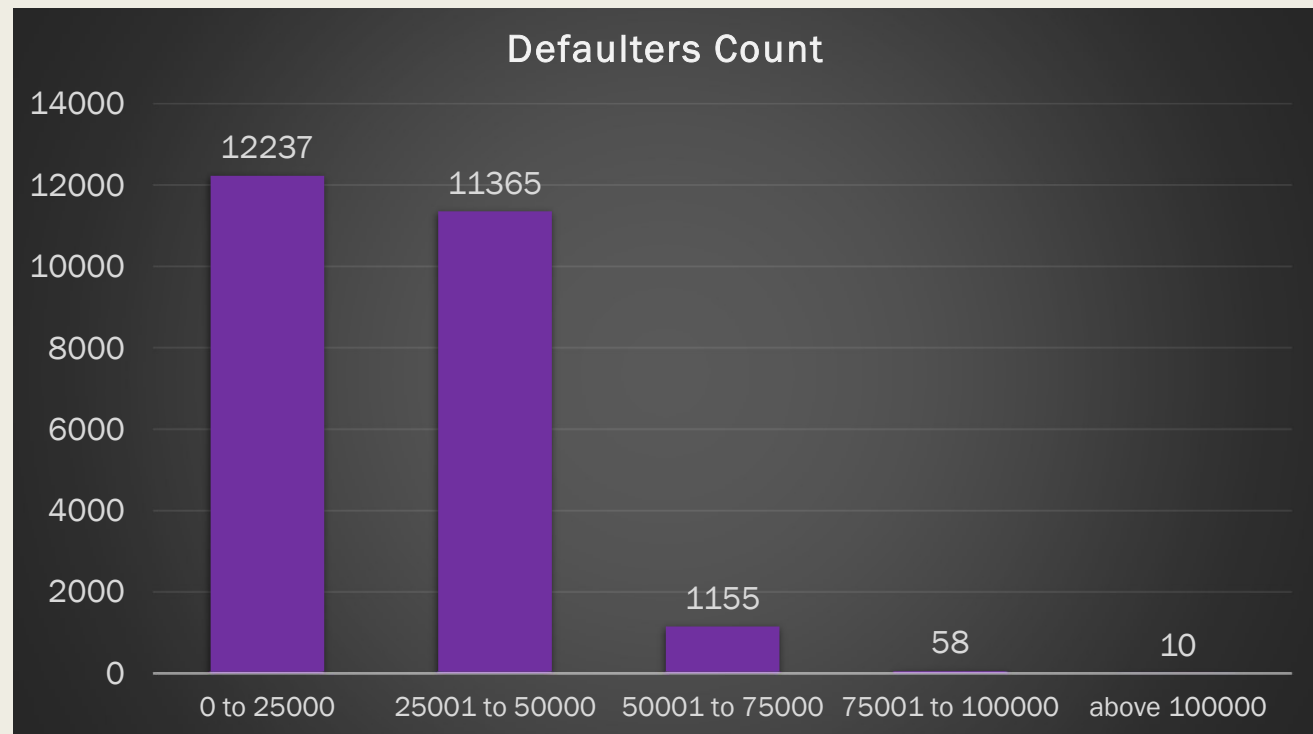
AMT_INCOME_TOTAL	Defaulter Count
0 to 250000	22279
250001 to 500000	2400
500001 to 750000	113
750001 to 1000000	20
above 1000000	13



❖ With increase in income level the defaulters rate decreases.

# Defaulters based on Annuity Amount:

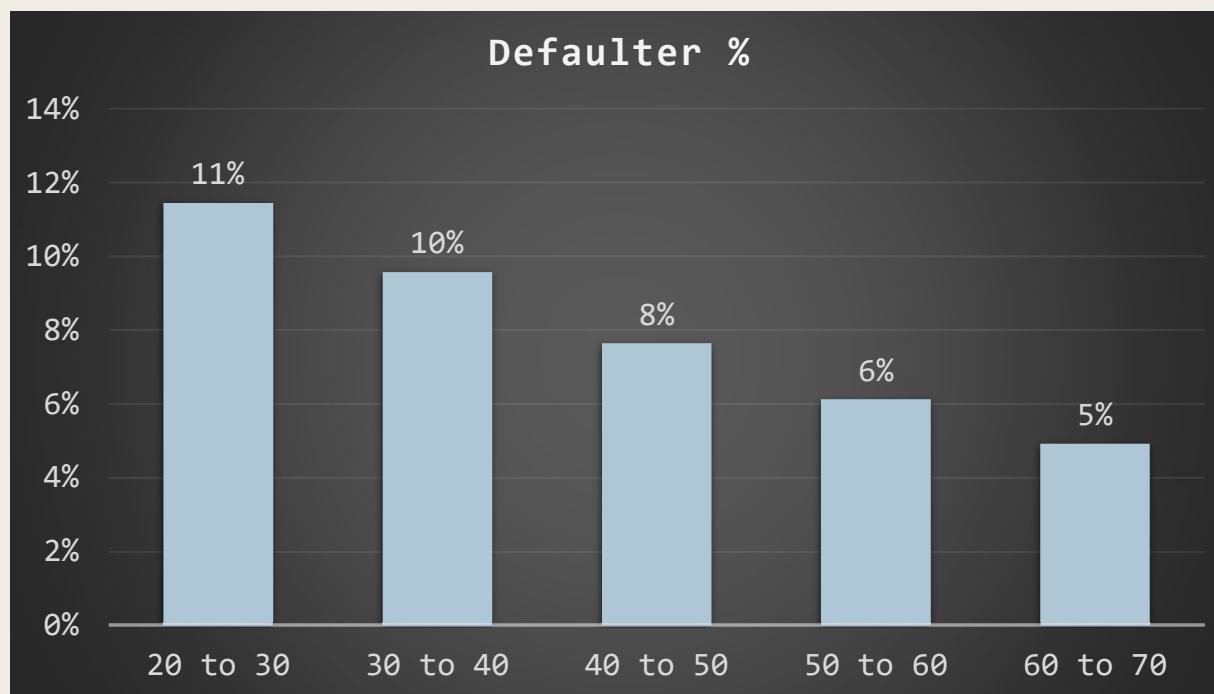
AMT_ANNUIITY	Defaulters Count
0 to 25000	12237
25001 to 50000	11365
50001 to 75000	1155
75001 to 100000	58
above 100000	10



❖ With increase in Annuity Amount the defaulters count reduces.

# Defaulter based on Age:

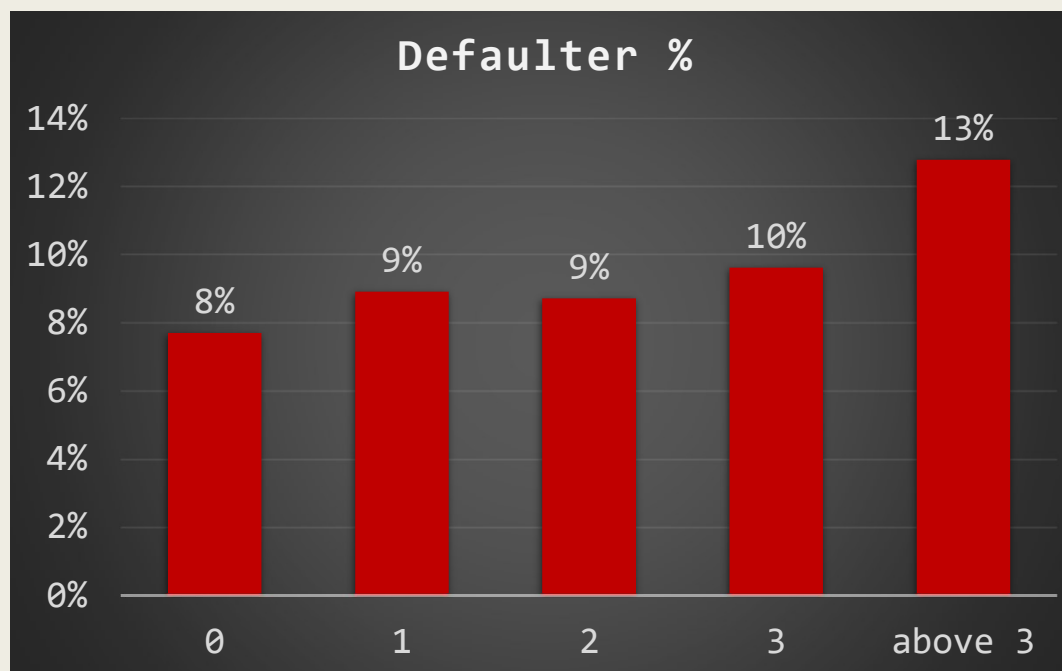
Age	Defaulter %
20 to 30	11%
30 to 40	10%
40 to 50	8%
50 to 60	6%
60 to 70	5%



❖ Higher the age of the client lower is the default rate.

# Defaulter Based on No of Children:

CNT_CHILDREN	Defaulter %
0	8%
1	9%
2	9%
3	10%
above 3	13%

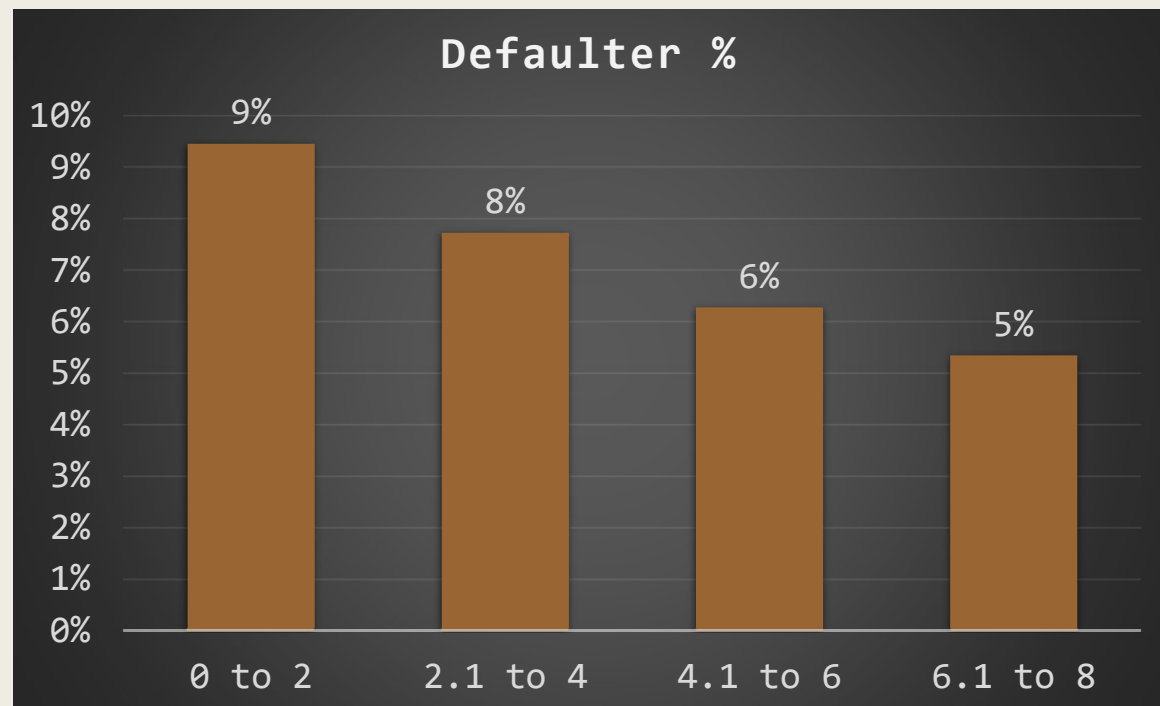


❖ Default % is more for clients who has more children.

# Defaulters based on Last Phone Change:

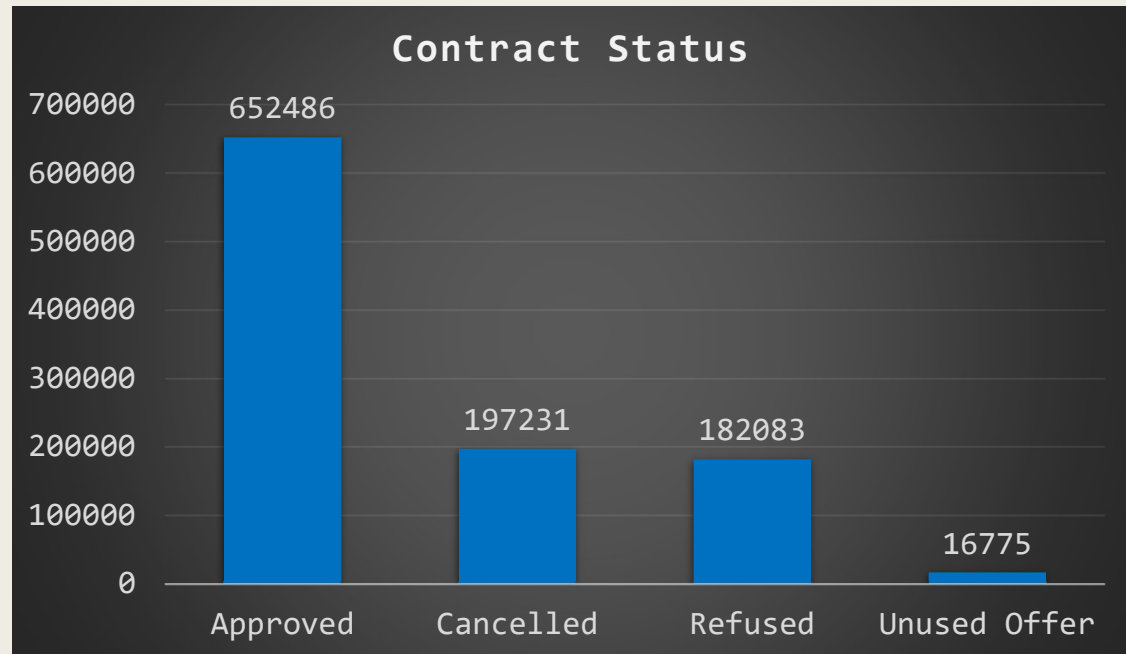
LAST_PHONE_CHANGE (in Years)	Defaulter %
0 to 2	9%
2.1 to 4	8%
4.1 to 6	6%
6.1 to 8	5%

❖ More Defaults if phone changed recently.



# Contract Status:

Contract Status	Count
Approved	652486
Cancelled	197231
Refused	182083
Unused Offer	16775



# Top 10 Correlations:

On Time		
Variable-1	Variable-2	Correlation Coefficient
OBS_30_CNT_SOCIAL_CIRCLE	OBS_60_CNT_SOCIAL_CIRCLE	1.00
AMT_CREDIT	AMT_GOODS_PRICE	0.99
DEF_30_CNT_SOCIAL_CIRCLE	DEF_60_CNT_SOCIAL_CIRCLE	0.86
REG_REGION_NOT_WORK_REGION	LIVE_REGION_NOT_WORK_REGION	0.86
REG_CITY_NOT_WORK_CITY	LIVE_CITY_NOT_WORK_CITY	0.83
AMT_ANNUITY	AMT_GOODS_PRICE	0.78
AMT_CREDIT	AMT_ANNUITY	0.77
DAYS_BIRTH	DAYS_EMPLOYED	0.62
REG_REGION_NOT_LIVE_REGION	REG_REGION_NOT_WORK_REGION	0.45
REG_CITY_NOT_LIVE_CITY	REG_CITY_NOT_WORK_CITY	0.44

Defaulter		
Variable-1	Variable-2	Correlation Coefficient
OBS_30_CNT_SOCIAL_CIRCLE	OBS_60_CNT_SOCIAL_CIRCLE	1.00
AMT_CREDIT	AMT_GOODS_PRICE	0.98
DEF_30_CNT_SOCIAL_CIRCLE	DEF_60_CNT_SOCIAL_CIRCLE	0.87
REG_REGION_NOT_WORK_REGION	LIVE_REGION_NOT_WORK_REGION	0.85
REG_CITY_NOT_WORK_CITY	LIVE_CITY_NOT_WORK_CITY	0.78
AMT_ANNUITY	AMT_GOODS_PRICE	0.75
AMT_CREDIT	AMT_ANNUITY	0.75
DAYS_BIRTH	DAYS_EMPLOYED	0.58
REG_REGION_NOT_LIVE_REGION	REG_REGION_NOT_WORK_REGION	0.50
REG_CITY_NOT_LIVE_CITY	REG_CITY_NOT_WORK_CITY	0.47



# Conclusion:

This Study reveals the following :

- ❖ The defaulter proportion is 8%.
- ❖ Bank lends more to female clients than male clients.
- ❖ Bank should focus on revolving loans as they are less defaulted as compared to cash loans.
- ❖ Clients who owns a car defaults less.
- ❖ Maternity Leave & Unemployed Clients defaults more hence bank must focus on providing loans to clients having jobs.
- ❖ Clients with higher education defaults less.
- ❖ Bank must focus on Older clients as the older clients defaults less.
- ❖ Clients with higher income defaults less hence clients with higher income must be preferred.